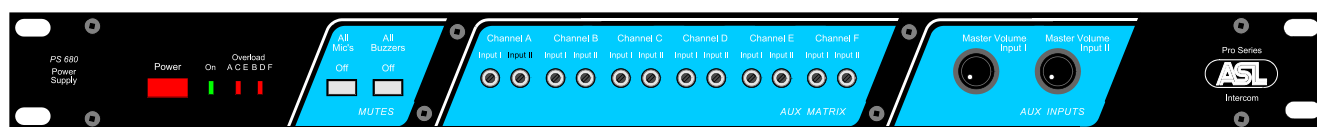




PS 680

SIX CHANNEL POWER SUPPLY

WITH AUX MATRIX



USER MANUAL

October 2013

This product is designed and manufactured by:

ASL Intercom B.V.

Zonnebaan 42

3542 EG Utrecht

The Netherlands

Phone: +31 (0)30 2411901

Fax: + 31 (0)30 2667373

E-mail: info@asl-inter.com

Web: www.asl-inter.com

CONTENT OF THIS USER MANUAL

1.0	SAFETY INSTRUCTIONS	3
2.0	GENERAL DESCRIPTION PS 680.....	4
3.0	MECHANICAL INSTALLATION	4
5.0	FRONT PANEL CONTROLS	5
6.0	REAR PANEL CONTROLS & CONNECTORS.....	5
7.0	TECHNICAL SPECIFICATIONS PS 680	6
8.0	PARTY LINE, TECHNICAL CONCEPT	7
9.0	CABLING	7
10.0	EARTHING CONCEPT	8
11.0	SYSTEM CONFIGURATION	8

Please always follow these instructions to help ensure against injury to yourself and/or damage to the system

1. Read all safety and operating instructions before you operate the apparatus.
2. Retain all safety and operating instructions for future reference.
3. Heed all warnings on the apparatus and in the safety and operating instructions and follow all installation and use instructions.
4. Follow all installation, operating and use instructions
5. Unplug the apparatus from the AC power outlet before cleaning. Use only a damp cloth for cleaning the exterior of the apparatus.
6. Do not use accessories or attachments not recommended by the manufacturer, as they may cause hazards and void the warranty.
7. Do not operate this apparatus in high humidity areas or expose it to water or moisture.
8. Do not place the apparatus on an unstable cart, stand, tripod, bracket or table. The apparatus may fall, causing serious personal injury and damage to the apparatus.
9. Do not block or cover any openings in the apparatus. These are provided for ventilation and protection from overheating. Never place the apparatus near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat. Do not place the apparatus in an enclosure such as a cabinet without proper ventilation.
10. Operate the apparatus using only the type of power source indicated on the marking label. Unplug the apparatus' power cord by gripping the power plug, not the cord.
11. Insert the plug properly. Do not defeat the safety purpose of the polarized or grounding-type plug. An American polarized AC line plug has two blades with one wider than the other. This plug will fit only one way into the power outlet. This is a safety feature. If you are unable to insert the plug fully into the outlet, try reversing the plug. If the plug still fails to fit, contact an electrician to replace the obsolete outlet. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician to replace the obsolete outlet.
12. Route power supply cords so that they are not likely to be walked on or pinched by items placed upon or against them. Pay particular attention to cords at plugs, convenience receptacles, and the point where they exit from the apparatus.
13. Do not overload wall outlets or extension cords, as this can result in a risk of fire or electrical shock.
14. Unplug this apparatus during lightning storms or when unused for long periods of time.
15. Never insert objects of any kind into the apparatus through openings, as the objects may touch dangerous voltage points or short out parts. This could cause fire or electrical shock.
16. Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as when the power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.

2.0 GENERAL DESCRIPTION PS 680

The PS 680 (19"/1RU) is designed to be a six channel power supply in an ASL intercom system. The unit is connected to the party lines with standard microphone cables (2 wires + 1 shield)

Inside the unit are 2 switch mode power supply modules, which are fully protected and can together drive at least 20 Pro Series beltpacks or 10 Pro Series 2-ch speaker stations (or a combination), operating at full power.

The Auxiliary Matrix:

On the rear panel are 2 inputs for external audio signals, so-called 'AUX' signals. Each AUX signal may be injected to each of the 6 intercom channels, with for each channel a volume control for each AUX signal. With the master volume control knobs the overall level of each AUX signal to the intercom channels may be adjusted. Each AUX input may be set to either line or mic level. If mic level is selected, +30V phantom power is available at the referring AUX input connector.

Fully electronic switching allows for a Mic Mute and a Buzzer Mute function:

- By pushing the "All Mics Off" button the microphones of the stations connected to the PS 680 are muted. At each user station the microphone may be switched again by pushing a TALK button.
- By pushing the 'All buzzers Off' button all buzzers of the stations connected to the PS 680 are muted. To abolish the 'all buzzers off' status of all these stations, this button has to be pushed again.

Remote Mute Control:

The Mic Mute and the Buzzer Mute push buttons on the PS 680 allow for sending these mute signals to all channels simultaneously. In case it is required that these signals can also be sent to each channel separately, an external switch box is needed which can be connected to a D-25 connector on the rear panel.

3.0 MECHANICAL INSTALLATION

A vertical rack space of 1U (1.75"/ 44,5 mm) is required for the PS 680. It is not necessary to provide rear support by extra bracing or shelving. Adequate ventilation must be provided by allowing sufficient space around the sides and rear of the unit to ensure free circulation of air.

Forced cooling is not required.

The power supply regulator is mounted on the rear of the unit. After a period of time it will feel hot to the touch. This is quite normal, and should be no cause for alarm.

4.0 MAINS POWER

WARNING: This appliance must be earthed

The PS 680 may be connected to a mains power outlet of 100 - 240 Volts, 50 – 60 Hz, 150 watts. The outlet should have a clean earth. Avoid using mains outlets which also power dimmer controlled lighting equipment. Fuse (all voltages): T 1250

The wires in the mains lead are color coded in accordance with the following code:

Green-and-yellow:	Earth / safety ground
Blue:	Neutral
Brown:	Live

In case the colors of the wires in the mains lead do not correspond with the markings identifying the terminals in your plug, proceed as follows:

- The wire which is colored green-and-yellow must be connected to the terminal in the plug which is marked 'E', or by the earth symbol or colored green.
- The wire which is colored blue must be connected to the terminal which is marked with the letter 'N' or colored black.

- The wire which is colored brown must be connected to the terminal which is marked with the letter 'L' or colored red.

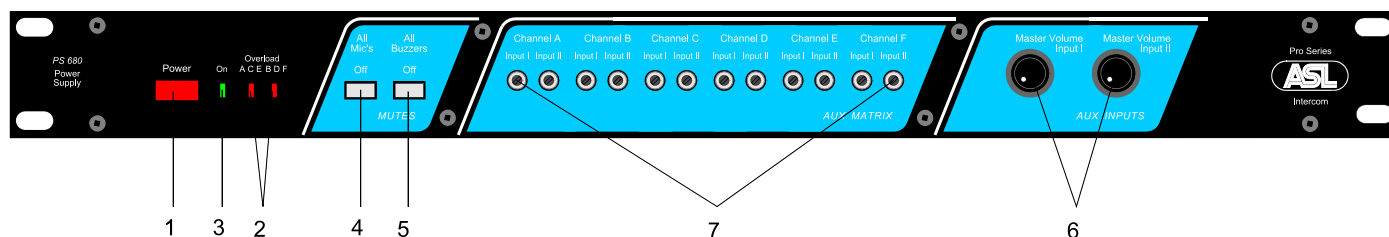
Safety Earth

For personal safety and proper operation of the PS 680 and its connected stations, the green-and-yellow wire of the mains cord must always be connected to the electrical installation safety earth or ground. This wire is internally connected to all exposed metal surfaces of the PS 680. Any rack framework into which this unit is mounted should be connected to the same grounding circuit.

Powering Up Procedure

- Make sure that the mains switch is OFF.
- Connect the power cord to the rear panel.
- Plug the other end of the power cord into a **properly grounded** mains outlet.
- Turn on the power with the red button. The red overload LED lights up for about 3 seconds and then extinguishes. Now the green power LED is lit, indicating the PS 680 is active

5.0 FRONT PANEL CONTROLS



1 POWER ON/OFF switch

Mains power push button to switch the internal power supplies On or Off

2 OVERLOAD LEDs

There is an overload LED for channel A, C and E (powered by PSU 1) and an overload LED for channel B, D and F (powered by PSU 2).

An overload LED illuminates if a circuit breaker has shut off the 30V DC line power due to overload. A cause for overload can be too many user stations connected or a short-circuit in the interconnecting cables. The circuit breaker resets automatically 3 seconds after the cause of the overload has been removed, restoring the line power. During short-circuit the overload LED flashes every 3 seconds. Every time mains power is switched on the LED is lit for a few seconds.

3 POWER LED

This LED illuminates if line power is supplied by the internal power supply

4 ALL MICS ON/OFF button

To mute all microphones of the connected stations

5 ALL BUZZERS ON/OFF button

To mute all buzzers of the connected stations

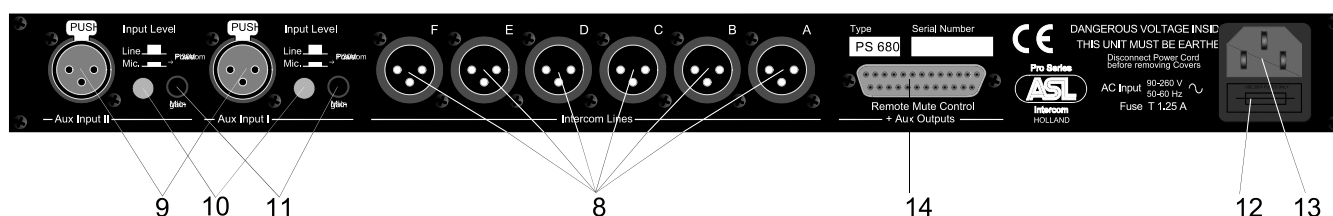
6 AUX MASTER VOLUME control knobs

To adjust the level of each aux input signal to the intercom lines

7 AUX MATRIX trimmers

To adjust the volume of each AUX input signal as sent to each channel A - F

6.0 REAR PANEL CONTROLS & CONNECTORS



8 LINE connectors A – F (XLR-3)

To connect 6 intercom party lines (standard microphone cable)

Pin assignments :

pin 1: 0V / ground shield

pin 2: +30V power wire

pin 3: audio wire

9 AUX INPUT connectors (XLR-3)

These two Aux inputs are electronically balanced and accept mic or line level audio levels.

Pin assignments :

pin 1: 0V / ground

pin 2: signal +

pin 3: signal -

10 MIC / LINE switches

To select Line level or Mic level for each AUX input. If mic level is selected, a +30V DC phantom power is supplied to pins 2 and 3 of the AUX input connector.

11 MIC GAIN trimmers

To adjust the sensitivity of the AUX input if mic level is selected.

12 FUSE holder

The fuse protects the PS 680 against severe internal damage, in case of malfunction of the internal power supplies.

Before replacing the fuse the mains cord must be removed. The fuse has to be T 1250 mA for all mains voltages 100 – 240V AC.

13 MAINS inlet

IEC Mains connector.

For correct wiring see section 4.0.

14 REMOTE MUTE CONTROL + AUX OUTPUTS connector

The Mic Mute and Buzzer Mute push buttons on the PS 680 allow for sending these mute signals to all channels simultaneously.

In case it is required that these mute signals can also be sent to each channel separately, an external switch box is needed, to be connected to this D25 connector.

To activate a mic or buzzer mute, the switch box connects the referring pins of the D-25 connector to ground. See D-25 pin layout.

The external switch box is made to order. Specific requirements of the user as far as for instance type of switches can be fulfilled.

On pin 2 and 3 of the D-25 connector are the unbalanced AUX signals. It concerns the pre-amplified signals taken after the AUX master volume controls (#6) before they are sent to the Aux matrix. Use high impedance loads only (minimum 20 k Ω); lower loads may disrupt the AUX signals to the intercom lines.

Pin layout of the D-25 connector:

1	Ground (0V)
2	Unbalanced AUX signal 2
3	Unbalanced AUX signal 1
4	+30V DC (max. load 1A)
5	+30V DC (max. load 1A)
6	+9V DC (max. load 50 mA) NOT short-circuit protected !
7	Mic mute all channels
8	Mic mute channel F
9	Mic mute channel E
10	Mic mute channel D
11	Mic mute channel C
12	Mic mute channel B
13	Mic mute channel A
14	Ground (0V)
15	Ground (0V)
16	Ground (0V)
17	not used
18	not used
19	Buzzer mute all channels
20	Buzzer mute channel A
21	Buzzer mute channel B
22	Buzzer mute channel C
23	Buzzer mute channel D
24	Buzzer mute channel E
25	Buzzer mute channel F

7.0 TECHNICAL SPECIFICATIONS PS 680

System

dynamic range: 80 dB (1 kHz, THD < 1%)
frequency response: 200 Hz – 15 kHz (-3 dB)
call signal (send): +2.8 mA
call signal threshold (receive): +2.4V DC
operation voltage: 24 - 30 V DC
power interrupt time (mic mute): 0.1 sec

Intercom Line

line impedance: 350 Ω (1kHz), 2.2 k Ω (DC)
audio level: nom. -18 dBu, max. 0 dBu

Switch Mode Power Supplies

mains voltage range: 100 – 240 V AC, 50/ 60Hz
DC output voltage: +30V DC (+/- 5%)
max. output power: 2x 45 watt
circuit-breaker delay time: 0.2 sec.
automatic reset time: 3.0 sec.

Aux Inputs

Input impedance:

10 k Ω (balanced line level)
4.6 k Ω (balanced mic level)

nominal input level:

0 dBu (line level)
-30 dBu (mic level)

max. input level:

+21 dBu (line level)
+0 dBu (mic level)

phantom power: +30 V DC (mic level selected)

PS 680 Dimensions & Weight

Width: 19" (483mm)
Height: 1U (44.5mm)
Depth: 250mm
Weight: 2 Kg

0 dBu is defined as 775 mV into open circuit

ASL reserves the right to alter specifications without prior notice

8.0 PARTY LINE, TECHNICAL CONCEPT

User stations in an ASL intercom system are connected via one or several 'party lines'. A party line offers two way ('full duplex') communication and consists of standard microphone (multi-pair) cable. One wire is used as an audio line, one as a power line and the screen of the cable functions as earth/return. Current drive is used for signal transfer. Each station utilizes a current amplifier to amplify the microphone signal and place it on the common audio line where, due to the constant line impedance (situated in the power supply between XLR pin 3 and 1), a signal voltage is developed which can be further amplified and sent to the headphones or loudspeakers.

This principle has three advantages:

- the use of a single audio line allows several stations to talk and listen simultaneously
- due to the high bridging impedance offered by each station, the number of stations on the party line has no influence on the level of the communications signal
- power and audio to the intercom stations use the same cable

The Call signal is also sent as a current on the audio line. It develops a DC potential over the line impedance which will be sensed by each station and interpreted as a Call signal.

9.0 CABLING

The intercom line connectors are of the XLR-3 type. Audio and Call signals are on pin 3, DC power is on pin 2 and pin 1 is connected to the shield of the cable which functions as the common return for audio and power.

The audio signal is transferred in an unbalanced way (see 'Party Line, Technical Concept').

To avoid earth loops (hum), the possible effect of electromagnetic fields and to minimize power loss, certain rules have to be obeyed when installing the cabling of an intercom system :

Use high quality cable

Use high quality microphone cable (shielded two conductor cable, minimum 2x 0.30 mm²). In case multi-pair microphone cable is used, it should be of high quality and each pair should consist of two conductors (minimum 2x 0.15 mm²) with separate shield and an overall shield.

Use flexible cable

Use flexible single and multi-pair microphone cable instead of cable with solid cores, especially when the cable is subjected to bending during operation or installation.

Cable screens to XLR pin 1

The screen of each separate microphone cable and/or the screen of each single pair in a multi-pair cable, should be connected to pin 1 of each XLR-3 connector. Do not connect these screens to the metal housing of ASL unitst or XLR-3 wall boxes. See section 'Earthing Concept'.

Connect metal cable trunks, wall boxes and overall multi-pair cable screens to clean earth

Metal cable trunks, metal wall boxes and overall multi-pair cable screens should be interconnected and, at the 'central earth point' in the intercom network only, be connected to a clean earth or a safety earth. (see section 'Earthing Concept').

Keep metal connection boxes and cable trunks or pipes isolated from other metal parts

Metal trunks or pipes for intercom cables and metal connection boxes should be mounted in such a way that they are isolated from any other metal housing or construction part.

Keep cables parallel as much as possible

When two (multi channel) units in a network are connected by more than one cable, make sure that these cables are parallel to each other over the whole distance between those units. When using multi-pair cable, parallelism is ensured in the best possible way.

Avoid closed loops

Always avoid that intercom cables are making a closed loop. So-called 'ring intercom' should not physically be cabled as a ring.

Keep cables away from electromagnetic sources

Keep intercom cables away from high energy cables, e.g. 115/230/400V mains power or dimmer controlled feeds for spotlights. Intercom cables should cross high energy cables at an angle of 90° only. Intercom cables should never be in the same trunks as energy cables.

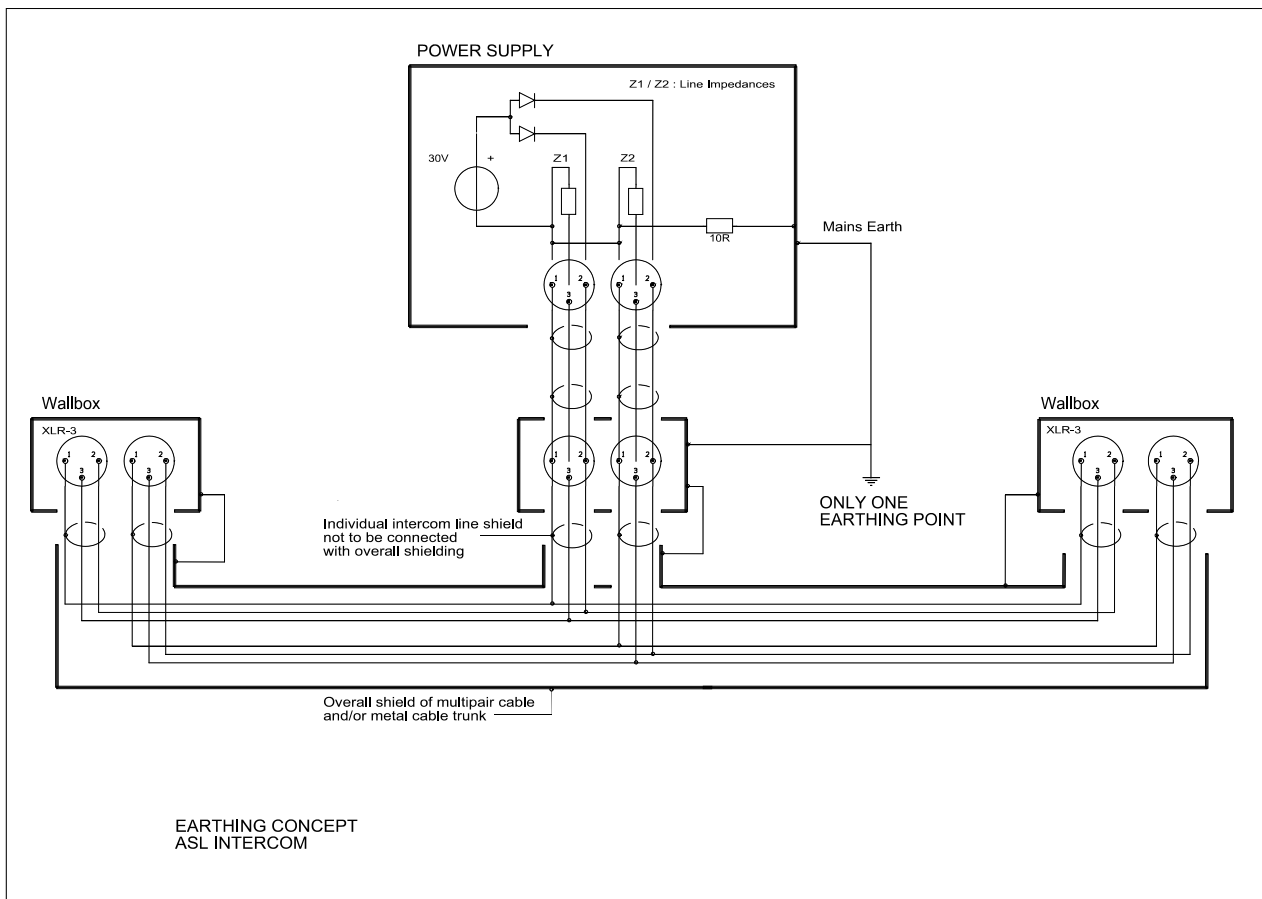
Place power supply in a central position

In case of a system powered by a separate power supply: In order to diminish power losses, place the power supply as close as possible to where most power consumption occurs, in other words most user stations are placed.

ASL powered units to a 'clean' mains outlet

Master stations or power supplies should be connected to a mains outlet with a clean earth. Other audio equipment may be connected to this mains outlet, but avoid using an outlet which also powers dimmer controlled lighting systems.

10.0 EARTHING CONCEPT



11.0 SYSTEM CONFIGURATION

